G:\sab\minutes\fy01min\drafts\ec05151a.wpd

SCIENCE ADVISORY BOARD
Executive Committee Meeting
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., NW, Washington, DC
Ariel Rios South Building, 3rd Floor, Rachel Carson Grand Hall
May 15, 2001

I. Attendees

MEMBERS

Dr. William Glaze, Chair
Dr. Henry Anderson
Dr. Linda Greer
Dr. Hilary Inyang
Dr. Janet Johnson
Dr. Morton Lippmann
Dr. Raymond Loehr
Dr. M. Granger Morgan
Dr. William Smith

DFO

Dr. Donald Barnes, Designated Federal Officer

Others present at the meeting are listed on the sign-in sheets (Attachment A).

II. Agenda (Attachment B)

[The items are generally presented in these minutes in their most logical, not necessarily their most chronological, order.]

III. Introduction

A. Chair's Introduction

Dr. Glaze welcomed everyone to the meeting of the Executive Committee (EC) of the Science Advisory Board (SAB). He noted that the SAB was charged with giving advice to the Agency on technical matters, based upon the information that was supplied to the Board. Analyzing this information, along with information submitted through a public comment process, the SAB members conscientiously apply themselves to accomplish their objective. The work of the Board has been useful and effective; we hope to make the work of the Board even more useful, effective, and efficient in the future.

B. Dr. Barnes's Update

Dr. Barnes conveyed some routine logistical and administrative information. He went on to describe the organizational structure of the SAB, the role of the Executive Committee (EC), and the role of the persons sitting at the table; i.e., the EC Chair, the Designated Federal Official (DFO), the Discussants, and the rest of the EC Members. He briefly described the conflict-of-interest issues associated with SAB activities, noting that none of the three reports

under discussion to were "particular matters", as defined by the Federal Advisory Committee Act (FACA). He expressed appreciation for the presence of so many members of the public and their interest, as evidenced by the number of speakers. He requested everyone's cooperation in respecting all of the opinions expressed and in keeping to the allotted times. The focus of the comments of the public and of the EC members was on three questions regarding the reports under review:

1) Does the report adequately respond to the questions posed in the Charge; i.e., the questions that the Agency has addressed to the Panel?

2) Are any statement or responses made in the draft unclear?

3) Are there any technical errors?

The possible outcomes for each of the reports being considered were as follows:

1) Approval of a Panel report, perhaps with minor edits

2) Approval of a Panel report, with modest changes, subject to final approval by a subset of the EC who are delegated the authority to act on behalf of the EC for purposes of verifying that the recommended changes have been made.

3) Sending the report back to the Panel for further consideration.

C. Brief Introductions

Dr. Barnes asked each of the Members to introduce him/herself through the use of a voluntary "self-disclosure process" (Attachment C).

1. **Dr. William Glaze** is a faculty member at the University of North Carolina at Chapel Hill (UNC-CH), where he is a member of the Environment and Engineering Department and Director of the cross-university, multi-disciplinary Carolina Environmental Program. His employer -- UNC-CH -- receives research funding and support from a wide array of sources, most of which are unknown to him. His personal research is in the area of environmental modeling, which does not bear directly on the issues under discussion today. In particular, he receives no directly funding from any entity that is heavily involved in "dioxin" issues. As the independent editor of the American Chemical Society's *Environmental Science and Technology*, he has expressed himself publicly on many subjects through his monthly editorials, all of which are a part of the public record.

2. **Dr. Henry Anderson** is an M.D., serving as the chief Medical Officer for the State of Wisconsin. His principal focus is in the area occupational and environmental health where he deals with science policy issues and the credibility of the underlying science. For 10-15 years he has been actively involved in biomonitoring for PCBs and "dioxins" in various populations. He has used USEPA risk assessments when providing advice to other risk managers and to the public. For example, he has provided advice about PCB and "dioxin" levels in sludge that could be safely applied to the land. He noted that the State of Wisconsin is involved in a variety of enforcement activities. He receives not direct funding from private companies to conduct research.

3. **Dr. William Smith** is Professor of forest biology at Yale University. In addition, he has provided advice to Connecticut authorities about the siting of powerplants and waste facilities. His research, which involves trace organic chemicals in forests, is primarily funded by

private foundations; none of his support comes from USEPA. He has conducted experiments on the fungus that has the property of decomposing persistent organic chemical, such as "dioxins".

4. **Dr. Linda Greer** is the Director of Public Health Programs at the Natural Resources Defense Council (NRDC). All of NRDC funding comes from dues and foundations; none of it comes from industry. Her job involves her in determining in the EPA deals with chemicals that may cause cancer. She is also the director of a project supported by the Beldon Foundation to investigation conflict-of-interest issues associated with advisory science panels, including the SAB.

5. **Dr. Morton Lippmann** is professor of environmental medicine at the Nelson Institute of Environmental Medicine at New York University Medical Center. He has conducted no direct research on "dioxin". He was asked to chair the first SAB Panel on "dioxin" due, in part, to his successful leadership in a number of other panels, including those dealing with environmental tobacco smoke and particulate matter. He has received EPA support research in exposure issues. Further, he is a recipient of a grant to run an Particulate Matter Center.

6. **Dr. Raymond Loehr**, professor of environmental engineering in the University of Texas (UT) at Austin, conducts a research program on contaminated sediments and site clean up methodologies. His work is supported by the University, industry grants, consulting firms, and other sources. He receives no direct support from EPA, although UT is a member of an 8-member consortium of institutions that constitute the Gulf Coast Center on Hazardous Wastes, from which he has received some research support. He has broad, but not detailed, knowledge about "dioxin". He also has broad experience in serving on and leading advisory committees such as the SAB EC, National Research Council Panels, and the ORD Board of Scientific Counselors.

7. **Dr. Granger Morgan**, professor and Chair of the Department of Engineering and Public Policy, reported that his department has received funding from a wide variety of sources, including the National Science Foundation, the Department of Energy, the Environmental Protection Agency, Exxon, the Electric Power Research Institute, and private foundations. On the issues before the EC today, he has presented his views in speeches and writings on issues related to Federal R&D funding and on the role of science at EPA. He has not deal explicitly with "dioxin".

8. **Dr. Janet Johnson** is Senior Technical Advisor at Shepherd-Miller in Ft. Collins, CO and adjunct faculty member at Colorado State University, where she had previously served as Director of Health and Safety. The issue of "dioxin" has come up in some of her work, but it has not played a central role in such work.

9. **Dr. Hilary Inyang** is Duke Energy Distinguished Professor and Director of the Global Institute of Energy and the Environment at University of North Carolina-Charlotte, where work is conducted on a broad range of issues. His main research interests are associated with the handling of hazardous waste. In the past, he has received research grants from EPA.

IV. Reports from Committees (Attachment D)

A. Research Strategies Advisory Committee (RSAC)

1. Consideration of *FY2002 President's Science & Technology Budget Request for USEPA: An SAB Review*

Dr. Loehr,. RSAC Chair, introduced the report that stemmed from a May 2 meeting and summarized the major points contained in the report.

Dr. Glaze congratulated the Committee and Staff on their work and made special note of their rapid completion of their work; i.e., EC discussion of a public draft of a report in less than two weeks. He emphasized that this was a demonstration of the SAB capability for "rapid response science advice" which should be brought to bear in those instances in which it is needed. If the SAB is going to talk about improving the state of science and science advice at the Agency, it should be able to prove that it can respond rapidly.

Dr. Smith complimented the Committee and Staff on their work. He found the exposition of the Agency's S&T budget in terms of GPRA goals to be an improvement over previous years.

Dr. Morgan also found the report to be in good shape and ready for approval. He commented that the Committee's recommended increase in S&T funding was indeed modest, but absolutely essential. He went on to highlight the importance of long-term attention to long-term problems. History is replete with examples of disinvestment in research funding once the problem had been "solved", which later proved sadly not to be the case.

Dr. Inyang also endorsed the report. with modest editorial changes.

The EC discussed the appropriate way to express the fact that the Agency was setting the right priorities but that the total funding to address those priorities might not be adequate. The RSAC is planning to address the latter issue more directly in future reports. It was agreed that a new paragraph would be added to the transmittal letter to capture these thoughts.

ACTION 1: The Executive Committee approved the Research Strategies Advisory Committee's (RSAC) report: *FY2002 President's Science & Technology Budget Request for USEPA: An SAB Review*, subject to final approval by Drs. Glaze, Loehr and Smith. Before the end of the meeting, the recommended edits were made and the entire EC approved the report. Hence, it is ready for immediate transmittal to the Administrator.

2. Consideration of the Research Strategies Advisory Committee's (RSAC) report: *National Program Directors' Management of Large, Cross_Cutting ORD Research Programs__An SAB Commentary*

Dr. Loehr, RSAC Chair, introduced the commentary and summarized its major points.

Dr. Morgan found nothing objectionable in the commentary. He recommended that it be reformatted in such a way as to lay out the key findings, followed by the three recommendations.

Dr. Smith likewise found the commentary to be in good condition. He raised the question of whether there are "sunset provisions" for these program director (NPD) positions.

Dr. Barnes asked whether the Board of Scientific Counselors (BOSC), the FACA committee that advises the AA/ORD, was aware of this SAB commentary. Dr. Loehr reported that he had visited with the BOSC earlier in the month and had shared a range of RSAC activities. The BOSC is currently focusing on reviewing the programs at each of the ORD labs and centers.

ACTION 2: The Executive Committee approved for immediate transmittal the Research Strategies Advisory Committee's (RSAC) report: *National Program Directors' Management of Large, Cross_Cutting ORD Research Programs__An SAB Commentary*.

B. Dioxin Reassessment Review Subcommittee

1. Introduction

Dr. Lippmann made a few introductory remarks to open the session.

2. Oral Public Comments

Dr. Barnes coordinated the Public Comment session, allowing five minutes for each of the speakers. In order to meet scheduling needs of two presenters [Mr. Hinds and Ms. Abhyan Thiele (substituting for Mr. Bill Walsh)], the order was altered from that on the agenda.

a. Mr. Rich Hinds of Greenpeace presented his views on conflicts of interest and ethics issues

b. Dr. Gary Karajanian of Alexandria, VA presented his views on the toxicity of dioxin (Attachment E).

c. Dr. Marcie Frances of the Chlorine American Chemistry Council presented her view that the Agency's assessment needs further work (Attachment F).

d. Dr. Thomas Starr made a presentation on behalf of the American Forest Products Association arguing that dioxin is not a human carcinogen when evaluated by the criteria in the Agency's Cancer Risk Assessment Guidelines (Attachment G).

e. Ms. Abhyan Thiele, substituting for Mr. Bill Walsh of the Healthy Building Network, highlighted some of the points in the written testimony (Attachment H).

f. Dr. Russell Keenan of AMEC Earth & Environmental, Inc. summarized the points on toxicity equivalency factors (TEFs) in his written testimony and made himself available for questions from the EC (Attachment I).

g. Mr. Steve Lester of the Center for Environment, Health, and Justice expressed his displeasure with process matters associated with the review (Attachment J).

h. Mr. Bill Smedley shared his views on dioxin and urged the EC to do the right thing.

i. Mr. Herbert Estreicher of Covington and Burling **,** read the statement of Dr. Thomas Sutter, University of Memphis, who had encountered travel problems (Attachment K). His remarks focused on the issues raised by mixtures of CCDs/CDFs and PCBs.

j. Ms. Charlotte Brody of Health Care Without Harm presented a summary of her views on dioxin (Attachment L).

k. Dr. Susan West of Physicians for Social Responsibility expressed her views, including the apparent difference between the Nov. 1-2 public meeting and the draft of the report before the EC today (Attachment M).

l. Dr. Pat Costner of Greenpeace International provided an overview of several dioxin topics, including recent data from Germany that indicate that the amounts of these compounds in human tissue, while still decreasing, are leveling off (Attachment N).

m. Dr. Peter DeFur of Environmental Stewardship Concepts provided a historical perspective of earlier reviews on dioxins (Attachment O).

3. Written Comments

In addition to the oral comments, written comments were received from the following individuals/groups and distributed to the EC:

a. Mr. James Branum, Vietnam Veterans of America expressed concerns with both the process and the outcome of DRRS report.(Attachment P)

b. Ms. Susan L. Chiang, Greenaction (Attachment Q)

c. Ms. Kimberly Collier, Endometriosis Association (Attachment R)

d. Mr. John Festa, American Forest & Paper Association (Attachment S)

e. Ms. Jacquelyn Elliott, Claremont, NH (Attachment T)

f. Mr. Clifford T Howlett, Jr. (Attachment U)

g. Ms. Pamela Miller, Alaska Community Action on Toxics (Attachment V)

h. Ms. Linda Noble, Organic Farmers (Attachment W)

i. Ms. Anne Rabe & Mr. Mike Schade, Citizens of Environmental Coalition, (Attachment X)

j. Mr. Bill Ravanesi of Health Care Without Harm, (Attachment Y)

k. Ms. Joan Reinhardt Reiss of The Breast Cancer Fund (Attachment Z)

l. Ms. Bryony Schwan of Women's Voices for the Earth (Attachment AA)

m. Mr. Ronald Smith, Bloomington, IN (Attachment BB)

n. Bright Spirit of People for Environmental Action and Childrens Health, (Attachment CC)

4. Agency Comment

Dr. Barnes had asked Dr. William Farland, Acting Deputy Assistant Administrator for Science in the Office of Research and Development, to present the Agency's views on the three guiding questions as they relate to the DRRS draft document. In his five minutes remarks, Dr. Farland highlighted some points in his written submissions (Attachment GG), including apparent inconsistencies between the transmittal letter, the executive summary, the body of the report, and earlier SAB reports.

5. More extensive introduction by Dr. Lippmann

Dr. Lippmann expressed appreciation to the DRRS and to Mr. Rondberg for their efforts to complete the report.

In response to many comments about the length of time it has taken for the Agency to complete its report, he noted that the SAB has not been a significant factor in this multi-year

delay. When the Board completed its first review in 1995, everyone expected that the Agency would be back for a final review within 12-18 months. The Board has had the review of the "dioxin" document on its agenda every year since then, in anticipation of completing the work.

He was troubled by the number of people who cited "inconsistencies" between comments made at the public meeting and the context of this report. The fact is that many DRRS Members did not express themselves openly or forcefully at the meeting. Further, the Chair and the DFO had explicitly stated that changes can, do, and should be expected to occur during the evolutionary (many drafts) process of moving from individual oral expressions at a public meeting to the generation of specific language that seeks to capture the cooperate view of the Subcommittee. Inconsistencies did appear as different drafts, suggestions (some of them a bit tardy), and emails were circulated. As these materials sought to "catch up with each other", there were periods of confusion about what the then-current language was.

6. Discussants' comments

a. Dr. Henry Anderson, Lead Discussant

Dr. Anderson, Lead Discussant, summarized his written comments (Attachment DD), finding that the DRRS had offered good advice. It was not clear to him how the Cancer Risk Assessment Guidelines (Ca GLs) had been used in reaching a judgment on human carcinogenicity. He had anticipated that the case of "dioxin" would be another illustration of how the Ca GLs could be used to reach a judgment. He noted that if there was disagreement about the answer to one of the Charge questions, then disagreement in subsequent Charge questions was likely, since there was a certain "cascade effect" linking many of the Questions. In general, he found the report to be well-articulated, but not always well-referenced. He found that the Executive Summary (ES) did not add much value; i.e., "it gets in the way". He recommended removing it, and simply focusing on the transmittal letter.

Dr. Lippmann responded that the DRRS had spend a good deal of time and energy on the ES. A shorter transmittal letter might well suffice.

b. Dr. Linda Greer, Associate Discussant

Dr. Greer noted the unusual circumstances surrounding this review:

1. The unprecedented number of public comments at an EC meeting.
2. A letter from four members of Congress (Attachment EE).
3. A strong memo from the SAB's client for this report, Dr. Farland, that was, in fact, the second memorandum on the subject. His first memorandum (Attachment FF) was even stronger. She read from point 4 of Dr. Farland's most recent memo (Attachment GG).
4. A separate memorandum (which she read aloud in full) from a member of the DRRS, Dr. Richard Clapp, expressing his concerns about the report generation process (Attachment HH). She reported that he had been discouraged from attending the meeting. She doubted that, under the circumstances, Dr. Clapp would endorse the DRRS report.

In light of these serious concerns about the policy, process, and science reflected in the DRRS report, she felt that the credibility of the SAB was at stake. She saw that the EC had three options:

Option A

1. Discard the work of the DRRS
2. Simply write a letter to the Administrator, informing her that the SAB could not resolve the issue, telling her what had happened, and describing what the SAB was going to do to improve its process.
3. Sympathize with the Agency's need to move forward in the absence of input from the SAB.
4. Conduct an investigation of the charges made in Dr. Clapp's memorandum.

Option B

1. Discard the most contentious elements of the DRRS report (the transmittal and the executive summary), replacing them with a short transmittal letter.
2. Conduct an investigation of the charges made in Dr. Clapp's memorandum.

Option C

Return the report to the Subcommittee, an option which she felt was not viable under the circumstances.

Dr. Greer also cited three "tone" problems in the current draft:
1. Inconsistency with the Ca GLs.
2. Certain statements not supported by science
3. Incidents of blurring between policy and science.

In response, Dr. Lippmann noted that the function of the SAB is not to serve as a rubber-stamp of Agency documents. In his view, the DRRS was performing appropriately when it complimented the Agency in areas in which it felt that the Agency had done good work and when it raised concerns where it felt that the Agency had gone beyond what a critical review of the science could support. Given the range of views on the Subcommittee, it is not surprising that there are disagreements reflected in the report. He assured the EC that Dr. Farland's comments (memo 1) had been distributed to the Subcommittee and had been discussed by them. As to Dr. Clapp's concerns about the process, they are views that he has to this date not chosen to share with the Subcommittee, its DFO, or its Chair. Regarding the issue of whether or not dioxin (2,3,7,8-TCDD; not the "dioxin" compounds) is a human carcinogen, Dr. Lippmann stated that a number of the Subcommittee members simply were not persuaded by the evidence presented to them. All of the members agreed that 2,3,7,8-TCDD is a potent animal carcinogen and could pose a carcinogenic hazard for humans. Less than half of the members, howver, were willing to say that 2,3,7,8-TCDD is "a known human carcinogens". Evidence cited by some of the skeptics included the following:

1. The apparent lack of a dose-response in the human studies.
2. The problems posed by confounders and mixtures in the human studies cited.
3. The behavior of 2,3,7,8-TCDD as a promoter.

The lesser amount of human and animal data on the other members of the "dioxin" family made it even more difficult to sustain an inferred "known human carcinogen" classification for them.

Finally, a difference in "tone" between what is heard at a public meeting and the final report can reflect the fact that:

1. Due to time limitations, public meetings do not admit a full airing of the issues.
2. In such a setting, some individuals are more effective or persistent in sharing their views than are others. The drafting process better insures that each person's views are heard and considered.
3. When views are set down in writing and subjected to rigorous, corporate scrutiny, there are often working changes that place the final statements on a firmer technical footing.

Mr. Rondberg volunteered that Dr. Clapp was incorrect in his description of the report preparation process. Nothing was "stuck in". Any changes suggested by any member of the Subcommittee were inserted and highlighted in each of the drafts. There was a continual exchange of information throughout the process. Dr. Clapp's quotes refer to different individuals commenting about different circumstances at different points throughout the process; e.g., the comment about the "murky" process (at one stage) referred to the rapid exchange of views and drafts that resulted in confusion about what comments referred to what drafts, etc. It was not a pejorative comment or allusion to invidious behavior on someone's part. The discussion about the Kirman reference in Dr. Clapp's memo dealt with what turned out to be a non-peer reviewed citation. A Subcommittee member was asked to find the appropriate citation, and he contacted a colleague to obtain this information. Once the nature of the citation was discovered, the next draft was changed to note, in redline, that the citation was to a conference paper and not a peer reviewed journal article.

Dr. Barnes reported that he had been called at home by Dr. Clapp during the previous weekend to inform him that he was submitting comments. Dr. Barnes remarked that it was unusual for a Subcommittee member to make public comments about a Subcommittee report of which he was a part. However, he noted that Subcommittee members were often invited to participate by phone in portions of EC meetings during which their reports were discussed. In this case, however, there were no telephone connections in the Great Hall where the meeting was being held. He assured Dr. Clapp that his comments would be distributed to the EC. He noted that it might not be worth his expense to travel to the meeting to present these views in a five-minute presentation. He recommended to Dr. Clapp that he contact the Subcommittee Chair and discuss his concerns with Dr. Lippmann. On the following Monday, Dr. Barnes and Dr. Fowle contacted Dr. Clapp by phone, and he agreed that the issue of process was separable from the issue of approval of the DRRS report. Dr. Clapp said that he was comfortable having his name on the DRRS report, provided that the items in the errata sheet (Attachment II) were included. Upon subsequent reflection, Dr. Barnes left word with Dr. Clapp that he had concerns about libel issues and that he was checking with EPA lawyers. He suggested that Dr. Clapp might wish to resubmit his concerns without mentioning any names. Dr. Clapp responded by e-mailing a version that removed the names of any individuals. It is this version that was distributed to the public.

c. Dr. Morgan, Associate Discussant

Dr. Morgan, the other Associate Discussant, had read the transcript of the DRRS Nov. 1-2 meeting, the Agency background documents, and the DRRS report. He did not find it unusual that there would be disagreements among scientists on a topic as long-standing and so controversial as "dioxin". In his view, the DRRS report is probably an accurate

representation of the range of views within the scientific community.

He suggested the report consist of:

1) A short transmittal letter that described what was done and the scientific uncertainties that were involved, adding the closing sentence currently on p. 3, lines 4-8.
2) A slightly edited version of the current executive summary.

He highlighted some of his own written comments (Attachment) on the role of science and decision-making. In particular, he recommended that language that currently referring to "science-based" be altered to refer to "decision-making informed by science". Further, he emphasized the importance of new methods of analysis what are probabilitistically based, in contrast to the bounding techniques that are used today.

d. General EC Discussion

Dr. Inyang had submitted written comments earlier (Attachment). He distinguished between the scientific questions (e.g., "Is dioxin a human carcinogen?") and policy questions (e.g., "Should dioxin be treated as if it were a human carcinogen?"). In his view, a valid consensus report need not be one that has unanimous agreement on every point.

He and several EC members exchanged a range of views on whether the executive summary was adding any value, given that its consistency with the message and tone of the main report was being questioned. Dr. Lippmann took exception to the notion that there were significant differences between the executive summary and the body of the report. It was certainly not the intent that there be any such differences. Mr. Rondberg reported that those who led the discussion of the various Charge Questions at the meeting were, in fact, the people who drafted the related sections of the report. The final report contains those original drafts, modified by input from other members of the Subcommittee during collegial interchanges that characterized the report generation process. Dr. Loehr noted that the bottomline of the report was really found in the aforementioned lines 4-11 on p. 3; everything else are in the realm of suggestions.

Dr. Trudy Cameron submitted written comments (Attachment LL).

Dr. Greer felt that the tone differences could/should be reconciled throughout the report. She agreed with lines 4-11 on p. 3 carried the major message of the report. However, she felt strongly that the response on the question of human carcinogenicity should reference the Ca GLs and that certain references to "science-based" activities undercut the Agency's positions. She agreed to work with others to fix these problems, if that would help move things forward. The group then discussed several specific areas and reached agreement on language to address many of Dr. Greer's concerns.

Dr. Smith expressed his concern that the non-human information not be lost in the Agency's overall reassessment, but rather that it be explicitly be brought to the decision-makers' attention.

e. EC Action

At the end of the discussion, the EC took the following action:

ACTION 3: The Executive Committee (EC) approved the Dioxin Reassessment Review Subcommittee's (DRRS) report: *Dioxin Reassessment of USEPA__An SAB Report*, subject to the following provisos:

a. The transmittal letter be re-drafted to indicate the complexity of the scientific issues and the associated scientific uncertainties. The letter will highlight 1) the "bottom line" on these matters, as expressed on p. 3, lines 4-8 of the current draft and 2) the need for targeted research, as expressed on p. 12, lines 23-26.

b. The Executive Summary be edited in line with the EC's discussion of 1) the role of the Cancer Risk Assessment Guidelines in this review, 2) the "tone" of identified passages dealing with "science-based" positions, and 3) the positive aspects of the Agency's analysis; e.g., the assessment of exposure.

c. Final concurrence by the vettors: Drs. Anderson, Greer, and Morgan..

The intent is to have a completed report on the Administrator's desk by June 1.

INSTRUCTION 1: Following a recommendation by Dr. Morgan, the following items are to be added to the agenda for the July EC meeting:

a) A discussion of the process issues associated with the generation of SAB reports; cf., Dr. Greer's concerns about the DRRS report. Dr. Glaze will work with Dr. Barnes to appoint a subgroup to develop this matter for consideration in the July meeting.

b) Approaches for assessing uncertainty

c) Risk communication in the face of unsettled information.

V. Other items

A. Dr. Barnes updated the EC on the emerging plans to conduct the July 17-18 meeting in the Risk Management Lab in Cincinnati.

B. Projects

Dr. Glaze led a discussion ...

VI. Adjournment

The meeting was adjourned on

Respectfully Submitted,

Donald G. Barnes, Ph.D.
Designated Federal Official

Concurred,

William Glaze, Ph.D.
Chair, Executive Committee

ATTACHMENTS TO IN ORDER TO THE MINUTES OF THE MEETING OF THE EXECUTIVE COMMITTEE OF THE SCIENCE ADVISORY BOARD
May 15, 2001

Attachment A -- Sign-in sheets
Attachment B -- Agenda
Attachment C -- Self-disclosure process
Attachment D -- Reports from Committees
Attachment E –Dr. Gary Karajanian, Independent Consultant
Attachment F –Ms. Marcie Frances, The Chlorine Chemistry Council
Attachment G -- Mr. Thomas Starr, TBS Associates
Attachment H -- Ms. Abhyan Thiele, Health Building Network
Attachment I -- Dr. Russell Keenan, AMEC Earth & Environment, Inc.
Attachment J -- Mr. Steve Lester, Center for Health, Environment and Justice
Attachment K -- Mr. Herbert Estreicher, Covington & Burling
Attachment L -- Ms. Charlotte Brody, The Campaign for Env. Responsible Health Care
Attachment M -- Dr. Susan West, Physicians for Social Responsibility
Attachment N -- Dr. Pat Costner, Greenpeace International
Attachment O -- Dr. Peter DeFur,
Attachment P –Mr. James Branum, Vietnam Veterans of America
Attachment Q –Ms. Susan Chiang, GreenAction
Attachment R -- Ms. Kimberly Collier, Endometriosis Association
Attachment S – Mr. John Festa , American Forest & Paper Association
Attachment T -- Ms. Jacquelyn Elliott
Attachment U -- Mr. Clifford Howlett, Jr.,The Chlorine Chemistry Council
Attachment V –Ms. Pamela Miller, Alaska Community Action on Toxics
Attachment W– Ms. Linda Noble
Attachment X – Ms. Anne Rabe & Mike Schade, Citizens Environmental Coalition
Attachment Y – Mr. Bill Ravanesi, Health Care Without Harm
Attachment Z - Ms. Joan Reinhardt Reiss, The Breast Cancer Fund
Attachment AA - Bryony Schwan, Women's Voices for the Earth
Attachment BB - Mr. Ronald Smith
Attachment CC - Bright Spirit, People for Environmental Action and Children's Health
Attachment DD - Dr. Henry Anderson, Member EC Committee
Attachment EE - Congresswoman Nancy Pelosi, George Miller, Member of Congress, Frank Pallone, Jr., Member of Congress, Henry A. Waxman, Member of Congress
Attachment FF - William Farland, Acting Deputy AA for Science, EPA
Attachment GG - William Farland, Acting Deputy AA for Science, EPA
Attachment HH - Dr. Richard Clapp, Member of SAB
Attachment II - ERRATA SHEET
Attachment JJ - Dr. M. Granger Morgan, Member of EC
Attachment KK - Dr. Hilary Inyang, Member of EC and Chair of EEC
Attachment LL - Dr. Trudy Cameron, Member of EC and Chair of the Council